CLAIMS

<u>WHAT IS CLAIMED</u>:

1.   A bus system, comprising:

a dynamically configurable bus;

5   a first bus device on the bus at a first virtual address and at a first physical address on the bus;

a second bus device on the bus at a second virtual address and a second physical address; and

a map of the first and second virtual addresses to the first and second physical

10   addresses, respectively, encoded on a program storage medium, the map being accessible over the bus.

2.   The bus system of claim 1, wherein at least one of the first and second virtual addresses is a guaranteed unique identifier.

3.   The bus system of claim 1, where in the map resides on at least one of the

15   first and second bus devices.

4.   The bus system of claim 1, wherein at least one of the first and second bus devices is a bus manager.

5.   The bus system of claim 4, wherein the bus manager comprises one of a workstation and a personal computer

20   6.   The bus system of claim 4, wherein the map is stored on the bus manager.

7.   The bus system of claim 1, wherein the bus system implements a network.

8.   The bus system of claim 1, wherein at least one of the first and second bus devices is selected from the group comprising a printer, a plotter, a workstation, a personal computer, a video camera, and a magnetic tape drive.

9.   The bus system of claim 1, wherein the map is encoded as a structure selected from the group of an array, a doubly linked list, a tree, a table, and a file.

10.   The bus system of claim 1, wherein the map is bi-directional.

11.   The bus system of claim 1, wherein the bus includes:

a first dynamically configurable bus; and

a second dynamically configurable bus.

12.   The bus system of claim 11, wherein the first and second buses are coupled by a bridge.

13.   A dynamically configurable bus system, comprising:

a dynamically configurable bus;

a plurality of bus devices coupled to the bus, each one of the plurality of bus devices having a virtual address and a physical address, at least one of the plurality of bus devices mapping at least one virtual address to the respective physical address for the bus device associated with the respective physical address.

14.   The bus system of claim 13, wherein at least one of the first and second virtual addresses is a guaranteed unique identifier.

15.   The bus system of claim 13, wherein the map resides on at least one of the first and second bus devices.

16.   The bus system of claim 13, wherein at least one of the first and second bus devices is a bus manager.

17.   The bus system of claim 16, wherein the bus manager comprises one of a workstation and a personal computer.

18.   The bus system of claim 16, wherein the map is stored on the bus manager.

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19. The bus system of claim 13, wherein the bus system implements a network.

20. The bus system of claim 13, wherein at least one of the first and second bus devices is selected from the group comprising a printer, a plotter, a workstation, a personal computer, a video camera, and a magnetic tape drive.

21. The bus system of claim 13, wherein the map is encoded as a structure selected from the group of an array, a doubly linked list, a tree, a table, and a file.

22. The bus system of claim 13, wherein the map is bi-directional.

23. The bus system of claim 13, wherein the bus includes:
     a first dynamically configurable bus; and
     a second dynamically configurable bus.

24. The bus system of claim 23, wherein the first and second buses are coupled by a bridge.

25. A program storage device encoded with instructions that, when executed by a computer, map a plurality of virtual addresses to the respective physical addresses for a plurality of bus devices in a dynamically configurable bus system upon detecting a configuration event.

26. The program storage device of claim 25, wherein each virtual address and the respective physical address is mapped into at least one of an array, a doubly linked list, a tree, a table, and a file.

27. The program storage device of claim 25, wherein the mapping of a plurality of virtual addresses to the respective physical addresses includes:
     querying each one of the plurality of the bus devices other than the bus manager;
     identifying each queried device from the configuration information therefore;
     ascertain the virtual address and the physical address for each identified device;

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constructing a map of the virtual address for each of the plurality of bus devices to the physical address therefore; and

storing the map.

28.   The program storage device of claim 27, wherein the map comprises at least one of an array, a doubly linked list, a tree, a table, and a file.

29.   The program storage device of claim 25, wherein the dynamically configurable bus comprises a first dynamically configurable bus and a second dynamically configurable bus and the act of mapping a plurality of virtual addresses to the respective physical addresses is performed only for the bus devices on the particular one of the first and second dynamically configurable buses experiencing a configuration event.

30.   The program storage device of claim 25, wherein the encoded instructions, when executed, map the virtual addresses to the respective physical addresses bi-directionally.

31.   The program storage device of claim 25, wherein the mapped virtual address is a guaranteed unique identifier.

32.   The program storage device of claim 25, wherein at least one of the plurality of bus devices is a bus manager.

33.   A method for robust addressing on a bus including a plurality of bus devices, one of the bus devices being a bus manager, the method comprising:

querying each one of the plurality of the bus devices other than the bus manager;

identifying each queried device from the configuration information therefore;

ascertaining the virtual address and the physical address for each identified device;

mapping the virtual address for each of the plurality of bus devices to the physical address therefore; and

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storing the map.

34.   The method of claim 33, wherein the querying each one of the plurality of devices includes querying at least one of a printer, a plotter, a workstation, a personal computer, a video camera, and a magnetic tape drive.

5   35.   The method of claim 33, wherein the bus manager comprises one of a workstation and a personal computer.

36.   The method of claim 33, wherein storing the map includes storing the map on the bus manager.

37.   The method of claim 33, wherein mapping the virtual address for each of 10   the plurality of bus devices to the physical address therefore includes mapping each virtual address and the respective physical address into at least one of an array, a doubly linked list, a tree, a table, and a file.

38.   The method of claim 33, wherein mapping the virtual address for each of the plurality of bus devices to the physical address therefore includes bi-directionally 15   mapping the virtual address for each of the plurality of bus devices to the physical address therefore.

39.   The method claim 33, wherein the dynamically configurable bus comprises a first dynamically configurable bus and a second dynamically configurable bus and the act querying is performed only for the bus devices on the particular one of the 20   first and second dynamically configurable buses experiencing a configuration event.

40.   A program storage device encoded with instructions that, when executed by a computer, perform the method comprising:

    querying each one of the plurality of the bus devices other than the bus manager;

    identifying each queried device from the configuration information therefore;

25   ascertain the virtual address and the physical address for each identified device;

mapping the virtual address for each of the plurality of bus devices to the physical address therefore; and

storing the map.

41. The program storage device of claim 40, wherein querying each one of the plurality of devices in the method includes querying at least one of a printer, a plotter, a workstation, a personal computer, a video camera, and a magnetic tape drive.

42. The program storage device of claim 40, wherein the bus manager comprises one of a workstation and a personal computer.

43. The program storage device of claim 40, wherein storing the map in the method includes storing the map on the bus manager.

44. The program storage device of claim 40, wherein mapping the virtual address for each of the plurality of bus devices to the physical address therefore in the method includes mapping each virtual address and the respective physical address into at least one of an array, a doubly linked list, a tree, a table, and a file.

45. The program storage device of claim 40, wherein mapping the virtual address for each of the plurality of bus devices to the physical address therefore in the method includes bi-directionally mapping the virtual address for each of the plurality of bus devices to the physical address therefore.

46. The method claim 40, wherein the dynamically configurable bus comprises a first dynamically configurable bus and a second dynamically configurable bus and the act querying is performed only for the bus devices on the particular one of the first and second dynamically configurable buses experiencing a configuration event.